

THE WAY UP

The European Launch Provider for Small Satellites

EUROCKOT
Launch Services

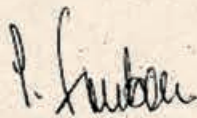


Since commencing operations in March 2002, Eurockot Launch Services GmbH has performed a dozen launches for a variety of institutional and commercial satellite operators in Europe, Asia and North America from Plesetsk Cosmodrome in a market that is fiercely competitive. Our order backlog confirms the confidence our customers place in our services and strengthens our position as one of the leading providers of reliable, cost-effective and customer service-oriented launches.

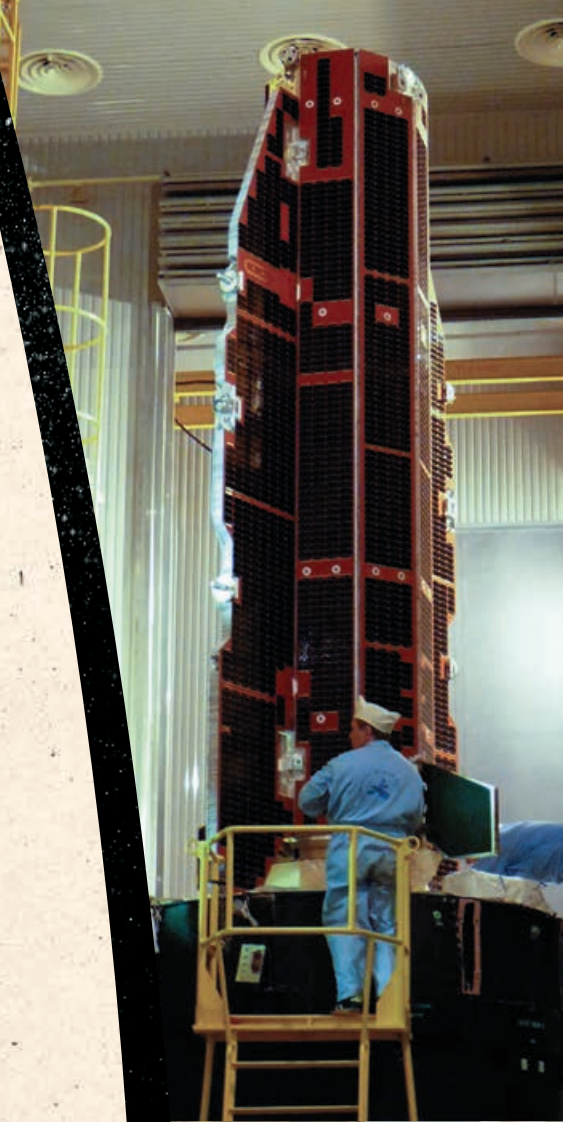
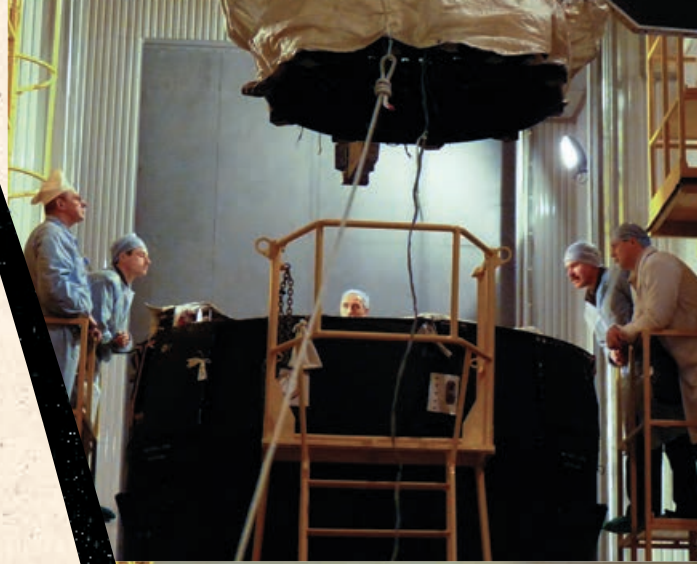
We are extremely proud of the fact that our customers place repeat orders with us, as in the case of the European Space Agency and the Institute for Unmanned Space Experiment Free Flyer of Japan, thereby strengthening our position as one of the leading providers of reliable and cost-effective launches of climate research, scientific, experimental and communication satellites into polar and sun-synchronous low earth orbits.

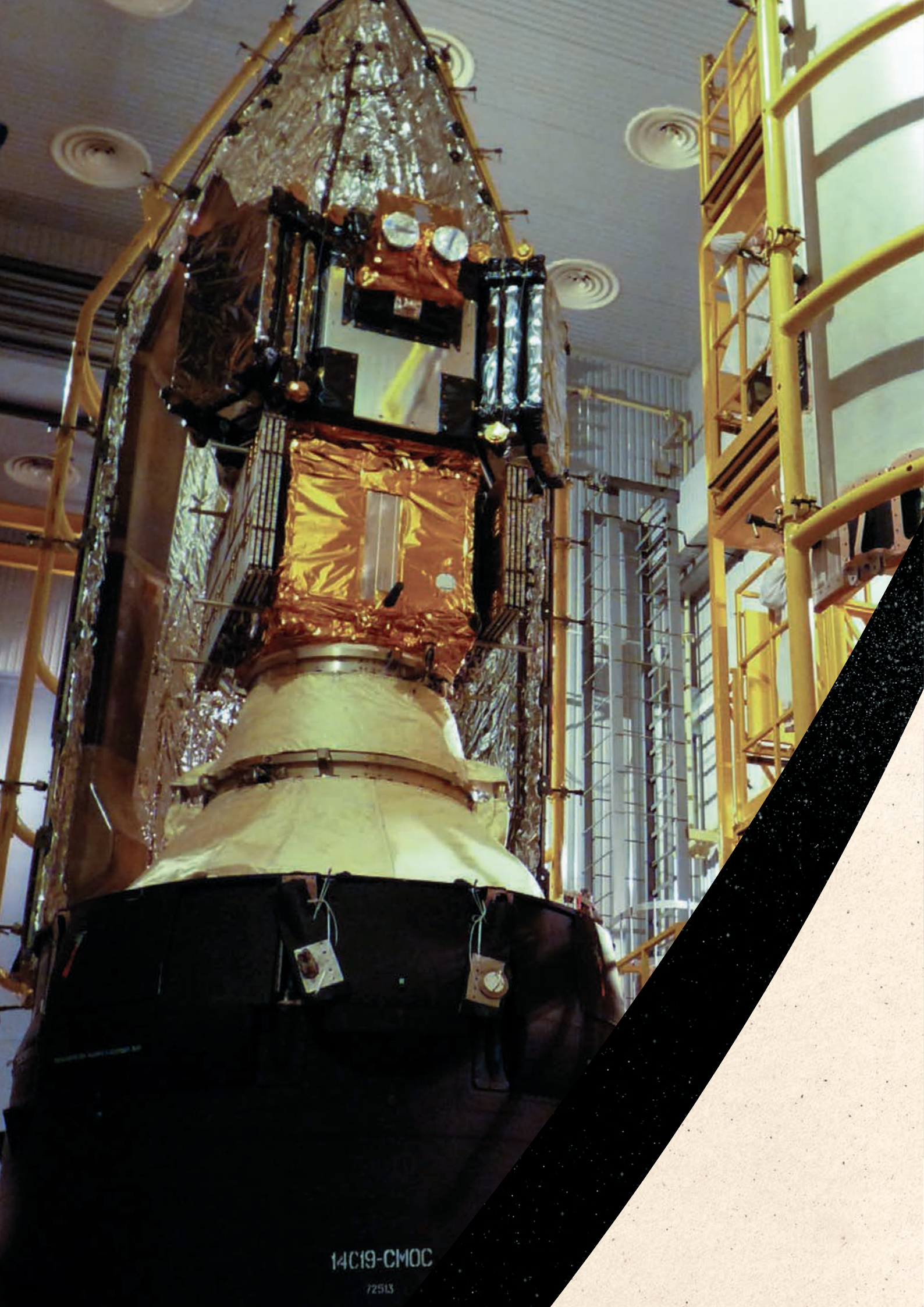
Eurockot uses the proven Rockot-KM launcher with a maximum payload of almost two tons for high precision injections of satellites; modern, dedicated satellite preparation, launch, mission control and customer facilities at Plesetsk Cosmodrome based on the investment of Astrium (now integrated into ArianeGroup) and offers comprehensive logistical and customer services in Russia as part of all-inclusive launch contracts with its customers. Since 2005, the launch record of Rockot is also being augmented through its use for Russian government launches.

As the joint venture of ArianeGroup (51%) and Khrunichev Space Center (49%), we count leading space agencies and institutions amongst its customers - and are proud of serving them!



Peter Freeborn
Chief Executive Officer





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In the face of a completely new market for Low Earth Orbit launch services on one hand and the reduction of Russia's missile arsenal in the early 1990's on the other hand, the idea was born to use the SS-19 Inter Continental Ballistic Missile (ICBM) for launching low earth orbit (LEO) satellites commercially. With this market and a sufficient stock of SS-19 missiles (approx. 150) in mind, Astrium (now integrated into ArianeGroup) and Khrunichev Space Center decided to form a joint venture, leading to the creation of Eurockot Launch Services GmbH in March 1995. Eurockot's business goal was defined as marketing and performing satellite launches for operators of LEO satellites by offering the Rockot small launch vehicle at attractive costs.

Both parent companies had the necessary means readily available - namely proven launch technology and attractive cost in Russia on the one hand and western business management, investment and customer orientation on the other. The combination of these assets and capabilities make Eurockot a uniquely dependable partner in the small LEO launch business.

Eurockot is the customer's contractual partner, thus having the full programme management responsibility up to the launch and post launch activities. From the customer's point of view, Eurockot adds value by being his single point of contact and guaranteeing launch services of international standard.

Committed To Our Customers

Eurockot has consistently scored high marks with its programme management qualities. For every mission, Eurockot will provide a dedicated mission manager with support team to achieve the necessary programme milestones. This includes interface control management, mission design and mission analyses, post launch evaluation as well as on-site management of the pre-launch operations at Plesetsk Cosmodrome including logistic support, campaign preparation and organisation. Eurockot's Russian partners Khrunichev Space Center and the Space Forces have an unrivalled experience in the construction and operation of launch vehicles and have proven their capabilities not only during many Proton launches, but also during all Rockot launches.

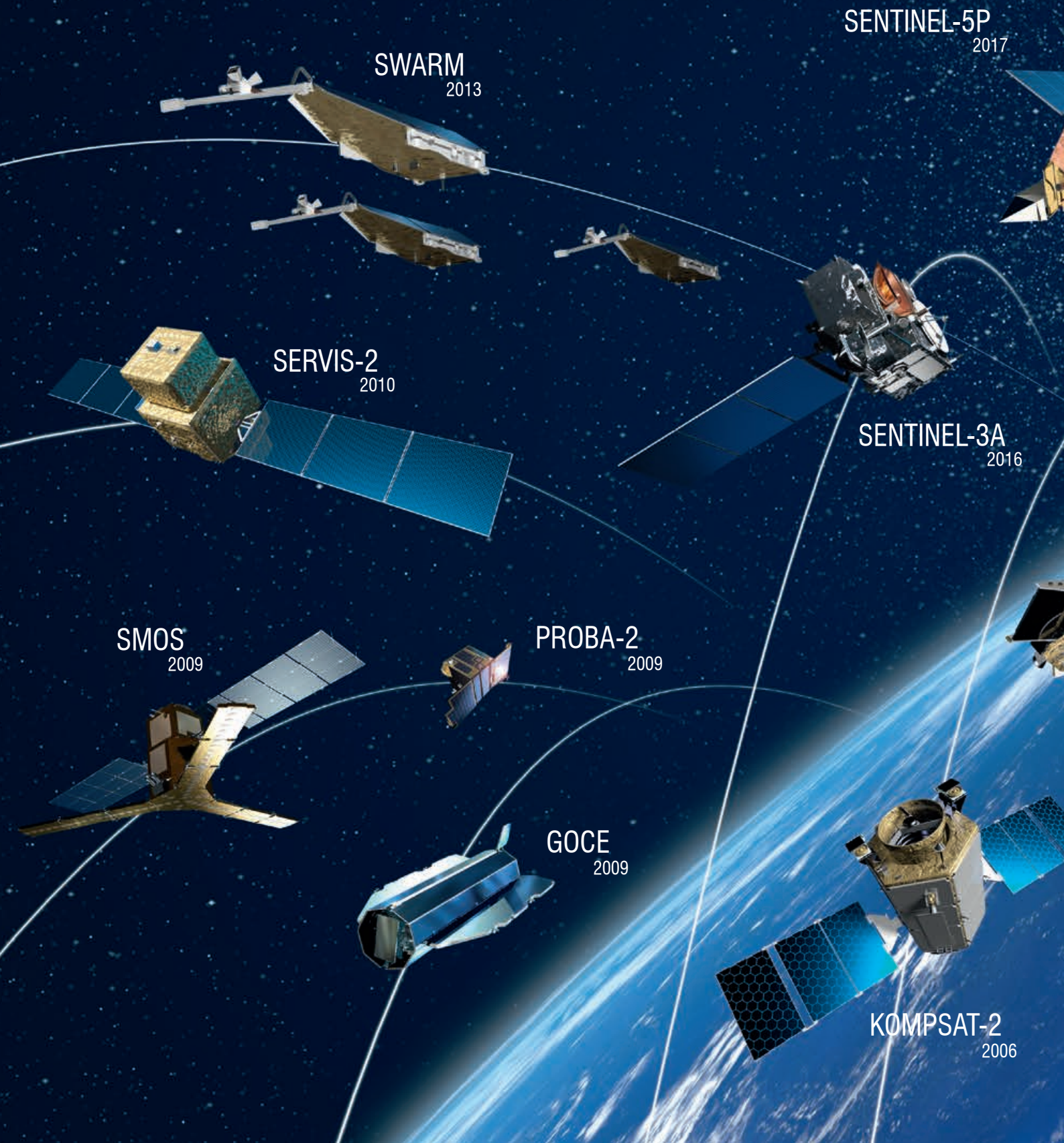
Eurockot prides itself with a wide range of services associated with a launch contract. During launch site surveys and mission campaigns Eurockot will provide the logistical support to the customer within Russia, ranging from air and ground transport to hotel accommodation and the welfare of customer personnel. By way of example, Eurockot can arrange and facilitate ancillary services including spacecraft fuelling and will also assist the customer in obtaining re-launch insurance for his mission.

Eurockot also routinely conducts media work in Russia involving the international press and broadcast corporations and will for instance support customers in live transmissions of launches.



SIGNED WITH EUROCKOT

Past, Present and Future Missions
using the Rockot Launch System.



SENTINEL-3B
2018

IRIDIUM IS-2
2002

GRACE
2002

Multiple
Orbit
Mission
2003

CRYOSAT
2005

SERVIS-1
2003





The flight heritage of the SS-19 comprises more than 150 flights in the past 20 years. Rockot launches began in the early nineties when three Rockot-K launch vehicles successfully deployed Russian satellites. Eurockot has performed 11 commercial missions for international customers since May 2000 with the Rockot-KM.

To ensure the correct functioning of all SS-19 components an extensive ground qualification test program is employed. A special revalidation procedure was developed to ensure the proper functioning of Rockot's first and second stages. This includes a yearly validation flight of an SS-19 and detailed mechanical and electrical tests to verify the booster stages are flight-worthy.

Typically, Rockot will launch a payload mass of up to two tons into a low earth orbit from Eurockot's facilities at Plesetsk Cosmodrome. This makes Rockot the natural choice for launches into such high inclination, polar and sun-synchronous orbits.

ROCKOT – Europe's Small Launcher

The Breeze-KM upper stage makes Rockot a unique small launch vehicle by comparison. It is re-ignitable and highly manoeuvrable and thus allows spacecraft to be released precisely into their required positions. Breeze-KM is a version of the Breeze-M upper stage also employed in the heavier Proton launch vehicle produced by Khrunichev. The full potential of Breeze-KM was successfully demonstrated during Eurockot's Multiple Orbit Mission in June 2003 when a total of eight satellites was released into elliptical and sun-synchronous orbits.

Eurockot employs payload adapter and separation systems of Russian as well as West European origin. Previous missions demonstrated the successful use of Khrunichev as well as Airbus DS CASA designs which are either available off-the-shelf or as customized designs. Eurockot's coup de grace was the successful orbiting of the three Swarm satellites for the European Space Agency in November 2013.

Next to classic LEO missions, Rockot is also able to perform Earth escape and planetary missions using an additional propulsion module. An incremental product improvement of the Breeze-KM upper stage will result in a gradual increase of payload masses into classical low earth orbits. Rockot will remain available for commercial launches well into the next decade. It is Eurockot's goal to maintain its high standards by offering high quality, cost-effective and customer service-oriented launch services to the market.



EUROCKOT
Launch Services



Eurockot serves its international customers from dedicated launch facilities at Plesetsk Cosmodrome, some 800 km north of Moscow.

Ten Rockot missions have been performed by Eurockot from Pad LC 133 at this Cosmodrome where substantial investment by Eurockot's parent companies created state-of-the-art payload preparation, launch, mission control and customer facilities exclusively for Eurockot's operations. This investment makes Rockot unique amongst small Russian launchers.

For Eurockot Customers Only

By way of example, the new payload integration hall features a clean room which offers certified class 100,000 cleanliness as a standard and class 10,000 optionally. Spacecraft fuelling is also possible within this integration hall. The administrative area offers separate offices for customer personnel during launch campaigns, including the possibility of guarded entries and exits to satisfy the customer's security requirements. Both the newly built Mission Control Center and the "Rockot" hotel are located in the town of Mirny.

Spacecraft and associated equipment are normally airfreighted to Archangel airport under the responsibility of the customer. They are then transported to the Rockot integration facilities at Plesetsk Cosmodrome by rail over a distance of some 200 km where the launch campaign commences with spacecraft preparation.

Owing to the location of Plesetsk Cosmodrome at 62.7 degrees northern latitude, Rockot is particularly well suited for launches at high, polar and sun-synchronous inclinations. However, Rockot can also perform launches into inclinations not normally attainable with standard launch azimuths from this location by executing plane change manoeuvres with the Breeze upper stage.

Eurockot has demonstrated the capability to plan and execute launch campaigns on schedule, thus creating the basis for the spacecraft's successful mission into orbit.





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